

Field Trip No. 1

Northern N.S.W., Darling Downs, Hunter Valley.

Sep. - Nov. 1936

K.H.L. Key



Northern NSW., Darling Downs, Hunter Valley.

Country as far as I saw much the same as Canberra. Beyond Bowring there was more bare ground. Got out just beyond Kinalong & examined the roadsides (bare ground & short grass patches). Found no hoppers.

In Young district there were numerous red-earth patches, and the country was perhaps slightly drier, but not much. Examined roadsides just north of Young: found only a Tetrigine on the margin of a pool. Soil evidently more binding <sup>see cond. of road.</sup>

Towards Grenfell the country became distinctly drier, especially somewhat N. of Grenfell. The dominant eucalypt now became a rather tall semi-rough bark, little-peeling, <sup>*E. microcarpa* or *E. Woodlissiana*</sup> ovate-leaved form, and a certain amount of rough-barked mallee. <sup>*E. sideroxylon*?</sup> x Hardly ever seen after Grenfell. Range of hills to left of road from before Grenfell for some way beyond. Ground beneath trees practically bare, no hoppers. (Photo 1)

Sites

[Description of site 1, 5 ms. N. of Parkes. <sup>(1st camp)</sup> Top of hill, red earth, stony. Sparse growth of trees & short grass in lifts. Few eucalypts. Depression at top in which water had lain. Soil now cracked, but not yet <sup>quite</sup> dry. Hoppers just hatched mainly in this depression. *hemimera* adults & nymphs all over the plain, but not in the few well-covered spots.] (Photos 2 & 3)



From Greenfield on a conifer (*Callitris* <sup>glauca</sup>?) began to be quite as common as the gums. Towards Lobsenz & beyond the country became mostly very flat. Lobsenz to Parkes, red soil, with <sup>prob. quartz</sup> limestone chips. ~~Tried for hoppers on roadside here - found none.~~  
 Chips, red soil fell further north, frequently with <sup>quartz?</sup> limestone chips. (or perhaps quartz?)

Site 2 A few miles beyond site 1, where country was flat. There were more spring hoppers than in site 1, and these were mainly *junji*, though one or two *puella* were noted. Old *terminifera* nymphs (one or two) presumably hibernated, were also encountered, but no adults.

Site 3 A few miles N. of Park Hill. One or two *junji* hibernata.

Site 4. A few miles from Narramine on N-Suehiro Rd. Grass ca. 1 ft. high on very sandy, light-colored soil beside of railway (hunch site) Large number of *Chorticeles terminifera* adults and one nymph. Also *Pycnosictus sciratus*, *Urosia guttulosa*, *Pycnosictus* *Urosia* nymphs & <sup>one of</sup> *Monistria* adult. *Monistria pustulifera* inter *p. pustulosa* and *p. mallee* (R). Crissid an area 48 ft by 27 ft in 9 lengthwise crissis observed 50 adults (high wind, 2 pm, clear sky. (Est. at least 1/50 ft. Some of these must be dissected.) (Photos 4 & 5) Observations on trying to get back to green area. "Nature"

Site 5 Approaching Dubbo. About same no. adult *terminifera* as in site 4 at Park Hill, but no *junji*.



*A. fijiensis* hoppers (1st - 3rd) in depressions where  
 tracks had lain. Also some of *Catantop* observed  
 in site 1. These hoppers were older (some in 3rd) than  
 any previously seen.

[Between Peak Hill & Narranmore small  
 18" shrubs had come in; these continued from  
 time to time.]

Between Narranmore Dubbo a few *Casuarina*  
 appeared for the first time.

Almost immediately N. of Dubbo there was  
 a change in the soil from red to dark red + in  
 places approaching black. This was correlated  
 with a radical change in the vegetation.  
 Very heavy, rough, black bark gum, with  
 fine, shiny, lanceolate leaves replaced those  
 obtaining since Glenfell. Mallee of various  
 kinds appeared. *Casuarina* increased very  
 considerably. ~~*Callitris* diminished very~~  
~~considerably.~~ A little further on gums with slightly  
 rough non-peel bark like those leaved  
 Glenfell came in, but the leaves were  
 of the rough bark type - lanceolate, shiny <sup>(narrow-leaved)</sup> <sub>(bon)</sub>.  
 I should not have called any of the soil as  
 far as Gilgandra "black" soil. Made a stop  
 ca. 1/2 way to G. on suitable-looking ground.  
 Found one *hemimifera* (5pm. shaggyish), very few  
 hoppers indeed. Chap at hotel confirms this to  
 not black soil country.



Observations upon trip so far :-

1. It is noticeable that (1) S. of Parkes, or thereabouts, there were no hibernatic terminifera, or if there were, they were just not noticed. At Parkes there were adults & nymphs, mostly nymphs. At Narranine <sup>(site 4)</sup> adults were numerous, nymphs very rare, & this was true also of Dubbo <sup>(site 5)</sup>. Similarly, at Parkes <sup>(1 & 2)</sup> all jingie nymphs were very small, almost entirely 1st. Same at Peak Hill <sup>(3)</sup>. By Dubbo these nymphs were larger (1st to 3rd) till the Gulargambone infestation prone to be these nymphs larger still? [Not. KK.]

2. Terminifera ~~nymphs~~ adults were found on all soil types (stony red (1), sandy (4), non-stony red (5) & we know they come from black soil country. Egg habits thus do not seem conditioned by soil comp. Note that <sup>usual</sup> areas of prevalence are 1) summer rainfall areas, 2) relatively mild winters, high temp. early spring areas. These cond. permitting (both long season & summer rain) of several annual generations.

3. Terminifera, in its centres of origin, is capable of hibernating, or at least overwintering in very consid. nos. in adult or late larval stages. This provides an



alternative means of survival to egg-overwintering. A season favourable to overwintering adults may result in great additions to hoppers nos. ca. Dec., when eggs from these hatch. Such hoppers may thus arise in places where there was no oviposition the previous year, we have to find out whether the adults found near Dubbo are the remnant of scattered swarms of 1935, or the result of a new population increase. In other words 1) were eggs deposited in this area in 1935, 2) was poisoning thorough.

4. No *terninifera* hatching this year from eggs were anywhere observed.

Side-track to Collie - Two new green low-branched trees. One bright-leaved tree <sup>(my photo)</sup> <sup>(Kurrupong)</sup> <sup>(my photo)</sup> <sup>(Kurrupong)</sup> much more mixed.

Silq. to Coon. Few off trees seen to Collie. Gumms tall & slender & dense. <sup>(my photo)</sup> Many *Callitris*. Toward hills ~~are~~ bright-leaved tree much in evidence.

Steb. <sup>1</sup>/<sub>2</sub> way to Coon. Scattered adult term. Beet. no hoppers. Roadside, red sandy earth, scattered low spreading grass. Leica 6

Very little *termynt* here we began to climb the hills, the soil became blackish



site 7.

*Asiophorus bannulus*, *Chortorictes terminifera*  
 Perhaps 5 m or less beyond site 6. Soil dark,  
 pasture very short, heavily grazed. Plenty of  
 term. adults - ca. twice as numerous as  
 near Dubbo. No nymphs observed, but not looked  
 for carefully. Trees mostly ring barked.  
~~the~~ Leica 7-X2.9

Reached Coon, where Mel. had just arrived.  
 joined P.P. meeting & made notes (gm).  
 Examined properties of Bugaldie & Goorianawa.  
 Property of Mel. & Annis was most heavily infested.  
 There were flies, ca. as dense as in site 7 or  
 denser. Numbers of these were laying eggs in  
~~hard~~ <sup>firm</sup> soil, but easily broken with knife.  
 At same time there were hatchlings all round,  
 and dense aggregations of hoppers almost  
 completely covering the ground for areas a  
 few yards square. Swept such areas in a  
 large slightly sloping, short pasture paddock.  
 At Goorianawa infestation was lighter,  
 but more extensive. Birds had been at  
 work. Large area covered. A different hopper,  
 either *Oedaleus* or *Gastrophysus* was observed  
 in small nos. on this area in 1st instar.  
 Further on there was a paddock with a few  
 infested patches, where I took Leica 11.

Wednesday

Proceeded to various points near Paradise,  
 among Pilliga scrub (*Callitris*). A few



hatching hoppers observed. In another property saw them fairly thick on magnolia creek (Leica 12). Baiting had been carried out. Second (smaller) collection of young hoppers made here. Passed through gap in Warrumbungle & reached Goorianawa. Black soil country from here to Coonamble. Goor. property had largest groups of hoppers yet encountered, covering patches perhaps 10yds long in several places. They were confined to "red soil ridges" in the middle of the black soil country, where there were "scalded" patches, which seem to be invariable characteristics of large egg-beds. The typical soil is not very hard or binding, but firm sandy red soil, easily broken with a knife. (Leica 13-15). Further on we reached more typical egg-bed country, which, however, had no extensive hatch. Small nos. of term., *pingi* & *pusilla*. Leica (16 & 17). On road to Coonamble another spot was encountered on purely black soil where adults were perhaps more numerous than in any previous site where pairing extensively (4 pm.).

McCarthy regards this as an extremely



light infestation - nothing to worry about. Many hoppers would die of starvation unless there were rain. He feared no outbreak.

General impressions:-

Trip was designed to enable me to be shown the hoppers with M.C. I was quite unduly hurried. In such cases of hurry camping is out of question.

No good purpose would be served by further visits except with a definite experimental plan to cover a long period. Camping would only be desirable if travelling short distances. Equipment must be cut down if poss, & dust eliminated.

10 gals. Forbes 2/3  
7 " Gilgandra 2/3  
7 " Coonabar. 2/3  
23/9 5 " Baradine 2/3

24/9 48 gals Coonamble 2/3

25/9 78 gals Gillareenebri

26/9 38 gals <sup>Mungindi</sup> Baradine 2/5

21-22/9 Supper, bed & b. Gilgandra rept. 22/9  
22-23/9 lunch, supper, breakfast Coon.  
23-4/9. supper, bed & b. Coonamble  
24/9 lunch Coon 2/6 phone 4/8 wire 1/9.



24/9

Meeting P.P. Board of Coonamble. Same tale of  
flyers all thro' winter, hatchings now "extensive"  
(ask McC.) in SE & SW of dist.

Site 8

Camp ca. 20 ms N. of Coonamble on black  
soil, sparse grass, some low semi-succulent  
dicots. A very few adult term, a few *Perilyprana*  
nymphs & one adult male recently mature  
(my photo of cat)

Site 9

few 100 yds. further on. Scalded patches of  
light-coloured soil with growth of mainly  
*Helichrysum*. Numerous *Austroicetes pusilla* hoppers in quite  
dense nos. Two adults seen & taken. One advanced  
juv. nymph. Same scattered term as in site 8.  
Soil sample. [Reica A?]

Site 10

Little further on, on similar soil where  
there was a much higher stand of grass, term.  
*Chortorictes terminifera* <sup>in the to</sup>  
was as numerous as anywhere. Two adult  
*Perilyprana* sp. n., *Riolopus lamellus*  
*Perilyprana* - in nymphs.

Higher grass hereabouts.

Country from Coonamble to Walgett becomes  
progressively drier. Trees become fewer &  
shrub (Coolibah) (ca. 25-30 ft av.). In places ground is  
very sparsely covered, in others fairly thick with  
low semi-succulent, in others thick with high  
tufted grasses (Mitchell) (2 ft.) Apparently even in this  
high grass country, however, it is dry. *C. term.*  
as scattered adults throughout whole distance  
from Coon to Walgett.



July 11

pl. 12.

A few in the ...  
Cedarnia sp., top silicles furca. Pyrus - like ...  
with apple ...  
bare, and apical head, a few tiny green  
plants - small ...  
green brown & brownish. The fruit ...  
is small ... (Heier, no) Quercus macrocarpa







cleared the garden at day, now up to a 1 ft. deep  
 ditch. The surface from E. to W. is  
 wider than the ditch, and is 3 ft. deep in  
 any part. The ditch is 1 ft. deep, and is 1 ft.  
 wide. On the north side of the ditch, there is a  
 row of stones. The stones are of various sizes, and  
 are brown to reddish in color.

See map  
 site 10

There are 10 stones up to 1 ft. in size. The  
 stones are of various sizes, and are brown to  
 reddish in color. They are in a row, and are  
 in a ditch. The ditch is 1 ft. deep, and is 1 ft.  
 wide. The stones are of various sizes, and are  
 brown to reddish in color.

~~Summary~~

Up to 100 ft. in size, but the size of the  
 stones is from 1 ft. to 10 ft. in size. The  
 stones are of various sizes, and are brown to  
 reddish in color. They are in a row, and are  
 in a ditch. The ditch is 1 ft. deep, and is 1 ft.  
 wide. The stones are of various sizes, and are  
 brown to reddish in color.



7/20/41  
Hopper, Mrs. J. J.

13

### Reflections

~~It is a pity that the~~  
~~of the hopper is not~~  
~~being done in the~~  
~~in the hopper~~

X

Take <sup>quantities of soil</sup> ~~soil~~ <sup>from</sup> ~~from~~ <sup>near</sup> ~~near~~ <sup>the</sup> ~~the <sup>hopper</sup> ~~hopper~~ <sup>are</sup> ~~are~~ <sup>found</sup> ~~found~~ <sup>to</sup> ~~to <sup>be</sup> ~~be <sup>used</sup> ~~used~~ <sup>for</sup> ~~for~~ <sup>comparison</sup> ~~comparison~~ <sup>of</sup> ~~of~~ <sup>egg</sup> ~~egg <sup>dec</sup> ~~dec <sup>in</sup> ~~in <sup>various</sup> ~~various <sup>soils</sup> ~~soils. NB. Besides soil moisture content, soil air, which is not given, sample by soil moist. Must make a full study of soils. Remember there is importance of egg habits, importance. No reason, stock has been retroactively not going, this question of soils must be investigated. Take soil samples from all egg bars.~~~~~~~~~~~~~~~~

X

Probably a good lot of eggs at least in the area.

Under the same equipment: Study of the habits in suitable small box for the samples killing bottles etc. Small wooden table for the samples and drying area. Take care of the film. Open up the film. Soil samples must be made in a box. No one should be of the habit of killing egg-birds. At closing, take care in the box.







*Tragacantha australis*

*Moraba cultrata carissima* (R), *Tragacantha australis*

*Pygostolus carissimus*, *Pygostolus carissimus* sp. n.

*Choristocentrus tenuifera*

*Moraba cultrata carissima* (R)(n), *Tragacantha australis*

*Pygostolus carissimus*, *Tragacantha australis*











Oct. 3rd. [Mr. Stimmer :- Hopper (Gard) in 1934, laid in A. Hopper came across Currier's property (from 20.) began laying it as soon as they got there. Hatched Oct-Dec. Nothing 1935. But came in again over India. began laying it once. Not if came in again. Another invasion from same direction about fortnight later. Continued laying for 1 month. I want to move on & put in grassy hollow. across telegraph line (see 4.) Thinning out was (Oct. 3rd.) line 25-28 (25 not printed)

[Mr. Hearn :- Round line on 2-4 after 20. Case along railway & 2000 from hill. Disappeared in foot with by gradual descent. Hopper's Division not known. Further step with Hopper. On 14 days ago in NE direction.] Line 29

[Mr. Hearn :- Hopper arrived in. Thinned age. laid eggs in black soil & then dispersed.]

Grounding of eggs would be in the south. Grounding of eggs (see 3-4 in line 28) is very probably but for the fact that light brown soil would be







Feb 21/2

which then to be examined. (The ground is a  
reciprocating place often which has originated  
a most vigorous observation of the life &  
samples in surrounding waters. Direction  
of departure would roughly coincide with  
direction of arrival as given by people  
at San Pedro de San Juan, especially for the  
(Pulmonate updates must be investigated)

San Pedro de San Juan is an deep bay  
very black - oil, probably black, even the  
of Combarbalba. At San Pedro de San Juan  
said to have come down the coast from  
Billings (I confirm) the same but  
now <sup>found</sup> on a beach near N.E. side. (There  
must be heard if for.) There was apparently  
no record of departure to land. Eggs large &  
granular were very small (approx 1/2)

[L. Martyn. Linn 35 (egg laid in 2/11 -  
probably) Linn 31-32 (Linn 31) A large  
volume of bones were with most with but  
mostly light dark red & light red. Some  
large ground pellets had numbers of  
egg-hats, mostly in the spine with (Linn 31)







but there was (with 5-10) 2-3 eggs  
 but others were found in upper part of  
 foliage on a bush in adjacent field and  
 the average in number of eggs

(Sides of eggs may also be determined  
 by 1) color that was on last egg (R)  
 2) color that side was (R) 3)  
 character of (1) present) Any other  
 winter. (Is it possible that the fly is  
 sheltered down under in foliage (e.g.))

[Larvae. No. 1 seems to have <sup>small</sup> eggs  
 but in very black foliage side by side of  
 road on low bush. It was stated that there  
 were further eggs in the foliage.]

Site 85

[McCallum's. The insect was seen  
 on a locust on an open low grass  
 area between wheat & a growth of 1-2 ft.  
 high stalky grass behind in a large field  
 behind. Some flowers were not large  
 but a few were in fruit. The insect was  
 on a locust the first & showed signs  
 of yellowish coloration (of cream). N.C. has  
 noticed where they had come from on







(Leica 33 + 34: - Swarms in flight, put up from  
eggs.) [at 20 p.m.]

[Horse on road to 4 p.m. - 5 p.m. -  
very thick with many flying insects. At night  
of 1000 - 2000 per acre. Large of 100  
per acre.]

[Chatham's. Had left. First reported <sup>1000</sup> ~~1000~~  
ago today. Arrived thickly then. Came in from SW.  
Came in on 1 day.]

[Herring's. When ahead 10 p.m. Very  
thick <sup>when</sup> flying & first reported with 1000. From  
SW. Came when sun arrived.]

Now at Cecil Plains. (Insects on  
road with from the locality.)

Hatchling reported by Simmons

Notes: - Much heavier infestation than  
in 1934 (as regards Woolman district.)

Extract from McKie correspondence 1934: -

Sep. 28th: Eggs hatching at Rocky Creek.  
Not only in dist. Shoorongarra dist.

There had been said in the same month  
by fly or wasp from Goundawarra dist.



according to Lord's letter. Suppose we  
 suppose to have found the body of the  
 from the early 18th. Lord's letter has  
 supposed that the body of the man was  
 in the same place as the body of the man.

[Survey Office, Land Revenue, Board,  
 Bristol  
 Sheriff  
 Muller, Pittsworth, Dally,  
 Sunday, England.







*Moraba cultata carissima* (R)(N)

Sept 21. Spent day at the field station. Under  
 fragments of rocks. Rapido for me  
 at the station, but the weather was not  
 good.

Further on - very photo of "apple tree".



Oct. 11th

27

Note. Several up to 100. On 11th the  
non-swarming adults of *Phaenocarpa*  
were mostly *Phaenocarpa* *Phaenocarpa*.  
They were mostly *Phaenocarpa* *Phaenocarpa*.  
Another about 100 up to 100.  
*Phaenocarpa* was *Phaenocarpa*.

Non-swarming *Phaenocarpa* *Phaenocarpa*  
which are mostly (1) adults of *Phaenocarpa*.  
(2) *Phaenocarpa* *Phaenocarpa* adults of *Phaenocarpa* - (1)  
*Phaenocarpa* *Phaenocarpa* adults of *Phaenocarpa*.  
(Collect *Phaenocarpa* adults.)

*Chortorictes hernimifera*

St. Louis, Penna.

File 26. *Nialapina* *laevigata*, *frögga* *laevigata* *laevigata*

*Paula grandis* - little fresh









Oct. 13th.

3 miles from house. As soon as we  
 leave the road is seen they were the only  
 we saw but in my case I saw two from  
 in vicinity of the water off road at  
 1/2 mile from house in 2nd section  
 these are the first two Boonanga  
 at house.

As soon as we go (down) to the  
 a Boonanga species in the valley  
still.

Coming from house to the first Boonanga  
 a mile off road, Boonanga species in the valley  
 Bilah, and a mile of the valley there  
 next to a Boonanga species in the valley  
 zone (Boonanga) Boonanga species in the valley

24.55. Boonanga species in the valley  
Boonanga species in the valley

Boonanga species in the valley  
Boonanga species in the valley

Boonanga species in the valley (5)

Chickadee. - no others to be seen.  
 Except. One pair of Lappin at Hager  
 Canyon. One to valley. At the lower  
 spring from which they come. They are  
<sup>not</sup> very much along the road to Teton. In  
 places they give off a note of surprise. At  
 this country is sandy, & mostly covered with  
 this to Hager Canyon & on both ways to  
 Dalby. Call them *Cyanocitta stelleri*. Between  
 Hager & Dalby several *Cyanocitta* were  
 seen. Some of them were very much  
 like *C. stelleri*. but none were seen. On both  
 ways from Hager to Dalby, black and white  
 with frequent patches of light black. were  
 seen. At start of black and the other  
 to Dalby, some (specimens) were found  
*Phon. carolinensis* among them.

One *scottii* was seen at Hager. It flew  
 into the air somewhere in the way, quite  
 as far between Hager & Dalby.

At top of rocky road to Hager at  
 Tipton Ridge on Owl River to today, also to  
 Hager.



Oct. 12

near Huntington

Site 26. Found fossils among some green  
 columns of pyrites. Then a small 1/2" shell  
 within 1/2" of the top of the 3rd column. It

looks as if it is about 1/2" high & 1/2" wide.

Site 27. "Fossils" near Huntington. It is

found in a small column of pyrites. It is a small  
*pusilla*

thing of 1/2" long & 1/2" wide, a few of the 3

columns. That will happen but has been in column

in 2nd. Along some of the columns. Not seen

in from 3.

Site 28. *Chortoicetes tenuifera*

Site 29. Beginning of the 1st column. It is

between 1st & 2nd. It is a small column

1/2" high.

Site 30. 5 or 6 of 1st column. They are 2 1/2"

soil in the green soil. It is a small column

1/2" high.

Site 31. Ca 7 miles N of Soil P. It is a small column

1/2" high.

It is a small column 1/2" high.

It is a small column 1/2" high.

It is a small column 1/2" high.

Oct 27



patches between. Undergrowth (yellow-brown)  
then was little green grass here & there.  
Happens otherwise from the last rank of  
beetles etc. some to light night.

*Cedaria* sp. *Calidia* sp. *Chortocetes* *terniifera*

Site 33. Ca. 2 miles from Hill. along 2 P. road.  
Sparse pasture on sandy soil. *Chortocetes terniifera*

Fixed warm present - place of *Chortocetes terniifera*  
in ca. equal warm here. *Chortocetes terniifera*  
happens of *Chortocetes* in large range of *Chortocetes*  
terniifera. *Chortocetes terniifera*

Oct. 18th. Hill. *Chortocetes terniifera* in *Chortocetes*

Oct. 19th. Hill. *Chortocetes terniifera* in *Chortocetes*

To Hill. 1. *Chortocetes terniifera* 15th, and then. *Chortocetes*

Mountain place for *Chortocetes*. *Chortocetes terniifera*

Oct. 20th. Hill. *Chortocetes terniifera* in *Chortocetes*

Oct. 21st. Hill. *Chortocetes terniifera* in *Chortocetes*

Oct. 22nd. Hill. *Chortocetes terniifera* in *Chortocetes*

Oct. 23rd. Hill. *Chortocetes terniifera* in *Chortocetes*

Oct. 24th. Hill. *Chortocetes terniifera* in *Chortocetes*

Oct. 25th. Hill. *Chortocetes terniifera* in *Chortocetes*

Oct. 26th. Hill. *Chortocetes terniifera* in *Chortocetes*

Oct. 27th. Hill. *Chortocetes terniifera* in *Chortocetes*

Oct. 28th. Hill. *Chortocetes terniifera* in *Chortocetes*

Oct. 29th. Hill. *Chortocetes terniifera* in *Chortocetes*











sand. There were probably many other  
 markings even going back to nothing about  
 them. Though on one of pieces of paper, their  
 property was a rubber tubing that they had  
 the property through to maturity. Large ones  
 of *Oedotoma spinulosa* were found in many  
 parts of the property, the  
 Oedotoma predominating in the more exposed  
 positions, further on the beach were the  
 thickly populated sites above majority of  
 the Thaxter sand sand-slag beds. The bags  
 were placed on such a type (sand sample)  
 about 50 hoppers placed inside to hold from  
 hand into guide wheel, from which all  
 about were taken. Consisted of <sup>part</sup> 2nd and 3rd  
 hoppers, mainly of 2nd and 3rd.

Place was at back of sand-slag  
 type of soil. About 100 hoppers or more. Note  
 confirmed that looked just over the floor on  
 other side of Conchamine, where soil was  
 light. At this place the light soil so far as  
 light is concerned, whereas further S, where the  
 coarsest the river, no then were reported on





White sand-ridge patch. Most of country  
from A to B is heavily wooded. R being  
merely an island of cleared area to.

Oct. 24th - Consulting "Cape" etc.

Oct. 25th - Visited Point at follow with H.  
Tadhat no report this year, but gave the  
following location that they visited -

near Black's (near Mangrove) - got (visited) has  
been about for sample of eggs. (Laying)  
Clarkson's (near Mangrove; Laying)

Called on Stock Insp. Team on the who  
was away.

Oct. 28th - 30th Agric Dept. Brisbane; Laid  
Dept.

Nov. 25 - A. L. S. Road (see notes further on)

Reports on 17000 Dull, red: -

1. J.A. Lueddell (not filed)
2. Caldwell (filed)
3. Howard Smith, Elkhart (filed)
4. W.J. Stone (filed)



Oct. 24. Koorangara.

Re. 24. Winton

Sep 24. Koorangara. Last March 1891  
grasshopper was taken from Koorangara.  
Now hatching everywhere.

[There must have been grasshoppers in 1891  
corresponding to the 1892-4 infestation in 1892  
from which the eggs of 1891-1892 were  
hatched in Victorian district.]

Garranlea (Hopper) (Hopper)

Oct. 24. Upland & England of 1891 (Hopper)  
hopper of Pichanjinia wallumbilla. Tern  
(Hopper) hoppers at Pittwater (Pittwater & 1891)  
G. L. Jendaryan (Pittwater)

[Hopper had been present in Garranlea from  
end of March to beg. of May. In Sep. 1891  
1892 large grasshopper was long in the  
same district.]

Hopper stage reached at Koorangara by end







1200' country by E. side of Tan.

Weswich - few small ones.

Hopper - small.

Swan (sp?) reported at Tan.

Nov 30 - Hopper from Richmond reported  
to be large nymphs. Hopper - flycatcher  
large swarms in Valley.

Dec 1st. Texas. [Capt. H. today's flycatcher  
laying] White Stone <sup>Soil</sup> Ranch, Kinston, Tambo.

John Crow. Concerning flycatcher last year (S.C.)

[Sloan's report: - Hopper in Georgia.

are generally 1 1/2 inches or less than  
those at Kinston. Georgia. Reported situated

on hard ground, usually a large & devoid  
of trees. The large. Soils light to dark

gray in colour. Hard ground usually  
selected. Grassland inhabited by tufted

grasses also suitable for inspection.

The flycatcher was reported to  
said to have been in from S.W. as from  
2000.]

Dec 24th. Richman (Ga.) arrived in Nov.  
flycatcher. Now very small, but from nymphs in



site) Callide Valley (Term?) - swiftness in  
fairly soon said on recently cultivated  
land. won't attack cotton when other  
food is available.

1st Dec '34: hatching of eggs from eggs  
laid just a month ago.

2nd Dec '34: hatching of eggs from eggs  
laid in 4th Nov.

Dec '34: both *Popa* adults & *Phaenocarpa*  
present from Lincolnshire (below. England?)

Towed. to Kew (Nov 14th & 15th. E. of Texas?)

Jan 35: *Scorpaenidae* (see *Spizella* (p. 7))

*Scorpaenidae*

Report of Smith: that numbers in 1934 were  
not large, but not being inhibited  
etc.

Rep. of Smith: Jan 1935. Swarms of *Scorpaenidae*  
in England & Ireland, together with a few  
adults.

Scattered adults in grounds near (and  
near) to the western limit of  
extensive infestation. Sporadic infestation

Orange di & Mirasubandi. from H. George  
 two balloons to Orange di & Mirasubandi  
 (the latter etc.)

Feb. 25. All happened, scattered from  
 south to W direction.

Nov 35. Hatchlings on Polmanick  
 on Texas - plantation road, also at  
 Umbroa Vie (in small no.)

Feb. 26. Hatched at Orange di

Feb. 26. Hatched at Orange di  
 Orange di. Hatched at Orange di  
 Orange di. Hatched at Orange di

The following summary may be made of  
 the above. Hatched at Orange di in 1924  
 March - May 1924. - Flying season. Laying eggs in  
 Koo, orange di, orange di & Pittman. Laying  
 eggs of 1st. original. Laying the Condor in 1924  
 Hatched in early Sep 1924. Laying eggs in 1924. Laying  
 eggs of 2nd. original. Laying the Condor in 1924. Laying  
 eggs of 2nd. original. Laying the Condor in 1924. Laying



Mr. Dadd - W. of this. It is in the  
 black soil then - some ridge marks as  
 so. The black soil is in the black soil  
 no. hard light sandy. (The soil is W. of the)  
 To some N. of this - a hard light sandy  
 with many patches. The soil is in the  
 a 5 ft. then sand about 1 ft. soil  
 right to top. Top is sand. 10 ft. from  
 a black soil a few light patches. Top  
 to 100 ft. from a black soil. The soil  
 brown light black alternate with 7-5  
 to 10 ft. on the way to the top.  
 10 ft. to 100 ft. from the top. The soil  
 is in the black soil. The soil is in the  
 sandy soil light soil with some grey  
 all between 10 ft. & 5 ft. 20 ft. to the  
 back of this is a light sandy soil.  
 Under the top to Talman's head is a sandy soil.  
 Talman's to 100 ft. light black soil with  
 sandy patches.

Light soil to 100 ft. light black &  
 sandy soil. hard black soil at 100 ft.  
 Talman's

*Trachypogon* *Trachypogon* *Trachypogon*  
*capitata* *capitata* *capitata*

[Whitehouse: - 19 mi E of Dublin, 10 mi  
 E of Wana, all black. Brown to black  
 brown, mainly black. Then 10 mi  
 W of Wana mainly sandy. Then after  
 black again.]

S.T.

[Black: - Making a full soil description  
 moving of soil. *Eucalyptus populifolia*  
 is used as indicator of sandy loam.  
 S. of latitude 22°S, except that in North  
 1. brownish more fine sand. Black in  
 soil maps for 1900-1910.  
 Main Road. Broad <sup>Central</sup> <sup>crossing</sup> <sup>road</sup> <sup>at</sup> <sup>the</sup> <sup>junction</sup> <sup>of</sup> <sup>the</sup> <sup>road</sup> <sup>to</sup> <sup>the</sup> <sup>sea</sup>  
 Soil Classification Code Chart.



The above is a copy of the original.

R., N.T. (51-9) Greg. 8<sup>th</sup> day, day about 100

7/10/10 - 10/10/10

Locality: - 1st, 12. 2nd loc. over, 18

Delphinus Forbellong Nea ...

Trichanema

Phryganea ... ... ...

Phryganea ... ... ...

Cedonia ... ... ...

Tasmanian ... ... ...

... ... ... ...

... ... ... ...

Carlipha ... ... ...



55





Soil is very dark, in cultivation  
 Air about 64° in patches light weather  
 soil. But soil from foot particularly  
 about 100 ft. from foot. About entirely black soil  
 700 ft.

Site 37. In sandy loam like site 33. Only soil  
 around the top of each conical. Found  
 small no. of Ord. v. sp.

Whole of country from branch along  
 Karara is very sandy loam with few  
 small surface in places also some ridges.  
 Very poor country

Even Karara is poor - most way very poor  
 country, very dry & exposed - strong - wood  
 at significant level in the timber around  
 600 ft. Karara when first approached.  
 Within a few miles (some 1000 ft) soil  
 becomes very light & sandy & very  
 poor. (a) a.

About 720 dark brown - dark grey soil  
 with patches of lignite showing about  
 a mile above the river. (b) a.

Shortly after 3 pm (most probably) will become  
 of summer type till 97 m. where a patch  
 of grass occurs.



(upper road)  
 [Middle - Sandy loam to splashed from  
 Englewood. A few miles beyond splashed  
 soil becomes heavier (heavy sandy loam),  
 which passes into heavier dark grey  
 soil with brighter streaks. ca. 3 miles W of  
 beyond splashed & extending to Kurokumbe.  
 Return then to sandy loam similar to  
 Englewood & extending to Goundi. Goundi  
 is medium grey. Going W along line ~~mostly~~  
 same as Goundi for 7 ms. Then for 10  
 ms. sandy loam, which also predominates  
 along the road to within 2 ms. of  
 Tebeah, where black soil begins.  
 However, N & S of road there is mostly  
 black soil from Goundi W. Black soil  
 extends to Kalamo, then red to Kindigili,  
 Kullumman to West. CK, Ugaga & Goundi  
 Raw sand from hill as far as 5 ms before  
 Kindan. Kindan to Ugaga mostly sandy  
 loam (brown country) & on to Goundi.  
 N of Kurokumbe to Goundi with heavier  
 black striped country.  
 Englewood to Kurokumbe sandy

Loam with the same sandy particles.

Loam to 100 ft -

4. to 100 ft sandy loam. 100 ft of  
to 100 ft sandy loam. 100 ft of

Loam ~~loam~~ & almost like the soil.

The 100 ft sandy loam. R. to 100 ft

very all <sup>light</sup> sandy loam. T. to 100 ft. 100 ft

and nearly sandy loam with some

particles of big white clay. R. to 100 ft. 100 ft

of sandy sandy loam. 100 ft of 100 ft. 100 ft

quite like the soil.

(The 100 ft sandy loam referred to here is

the "Southern" loam, which is a mixture

of the two loams.)

Just west from 100 ft to 100 ft

all ~~light~~ sandy loam.]



Dixon - Argemone but in a common spot.  
 Probably came in from N. side. Common river  
 all along. Depth from banks to center.  
 Very low at low water. General direction  
 of flight N. but did not observe further than  
 some N. This may be due to hinder at  
 that distance. Report from as far as about  
 NW points across to. Prep high ground  
 for laying 3

Nov 10th Trip to Texas. On 1st know own  
uniform heavy sandy loam (Sun) At know  
 a heavier patch with ingest. Number of  
Detritus in gravel patch - along route  
 Country mainly even de, with rising in  
 places. Similar to Woodch - Englewood  
section. Slightly hilly country to the at  
65 ms. Heavier than any loam ca - 5 m  
from Texas, (small patch) denser than most on  
ls - Engle - road for

Winters Mr. Road from 8 miles of the river  
along the river. He had reported that - few days  
ago swamp open weather stayed across the





Texas R.R. (New road) Sandy loam with  
 fine 20 gr. gravelly surface & also known  
 gravelly soil for <sup>cap.</sup> first 10 ms. Then ca.  
 13 ms. mostly fairly new sand with patches  
 sandy loam. Then a few miles of heavy  
 white sand with sugar gums, followed by  
 light beige soil a few miles before  
<sup>on border of Salvestique R.</sup> Lptman. All way from Texas to Lptman  
 mainly timbered. Large clearings in  
 Lptman district (timbered). Patches <sup>(ca 1 mi)</sup>  
 sandy soil 3 ms. out of Lptman R. road.  
 7 ms out becomes heavy sandy loam to  
 brown for ca. 2-3 ms. Then darker black,  
 with small trees. Small sand ridges at  
 17 ms. At same point after <sup>(ca 1 mi)</sup>  
 timbered black. Sand ridge at 25 ms. &  
 (almost alongside river) sand ridge at 29 ms.  
 Sand ridge at 30 ms. Lighter black in  
 between. Sand ridge at 31 ms. Now more  
 sandy loam than black. Black disappears  
 ends at 31 ms. Thereafter dusty loam.  
 Right from 30 ms to 31 ms black soil  
 plain with patches of sand. 2. Lighter soil

extensive ranging to that country for  
all over from 1870 to 1890



adults taken were fairly recently  
hatched. *Tyrannus* were also taken of  
*Phainopepla nitens*, the first being the  
most numerous. The last the least (1).  
Several *Myiophobus* seen.

*Rhipidura* seen in 4 or 5.

It must be concluded that all the  
species mentioned were breeding in the  
immediate vicinity of the house, and  
including leaves, although the report of  
breeding was very probably also true.  
Don't sample them. Hopper has been  
unusually abundant the previous year  
(Aug)

*Buphala* 82m - to 1000

Patch dark grey soil at 1m. then  
sandy loam again

85.4 lighter sand ridge to 86.8. with

several small patches dark grey,

then dark grey in open. Several  
pale with occasional light patches.

Fr about 88 - good talk. Temperature  
seen here.

91.2. Sand ridge.

Dark grey to 93. Creek.

Barren plain with gravelly surface  
for creek to 94 where at top of  
rich black soil - the creek banks,  
mudflat, below soil.

Two brownish & redish soils to 97.  
One light brown soil to 97.

Odd open & broken - light brown  
soil to 98.6.

Very small blk patch at 101.8 followed  
by blk. cleared country  
~~at~~ at 102. - 103. then heavy  
brown grey soil. Quaternary black  
soil.

8.5. uniform blk soil, open surface.

Fr 8 very heavy blk, plain alternating  
w/ dark grey mudflat.

10 m. mudflat, small.

11.6 Tuloma bridge.

Very heavy blk. black, to 115.6.



- 48.5. Then open belt soil plain w scattered  
 groups here. K.B.W. 17.  
 49.5. Scattered *Acacia* trees  
 26.6 sand ridge  
 31.3 Sandy loam ridge at creek.  
 32. Timber w extensive ungrazed area. Soil  
 as before. Below ridge partial  
 37.1 small sand ridge then dark grey <sup>plain</sup> soil  
 with groups of Yellow Box.  
 38.3 sand ridge.  
 39 sand ridge. Sandy loam w open  
 savannah of *Homalium* etc.  
 41. Dark grey.  
 42.3 sand ridge.  
 43.6 Black soil, mostly level plain w 3-4 ft  
 acacia.  
 49.4 Coolaroo bridge.  
 Sandy loam.  
 51.2 Dark grey - open thorn acacia savannah.  
 52.2 Sandy loam.  
 54. Dark grey to blk - good pasture.  
 56.0 1/2 miles.

General observation:— Black soil  
 can be observed often to be invaded to  
 considerable distances (Maringow, Mon,  
 Coomambie, Coorab) In this connection  
 one may note (1) Such country is extremely  
 open, enabling easily migration (2) It is  
 unsuitable for superposition, so that flight  
 become extended (3) it is usually relatively  
 so that invasions are usually repeated.  
 (4) The margins of light soil & black soil  
 are especially suitable for breeding, since  
 such margins are the more likely to be  
 cleared of timber, which otherwise would  
 much light soil unavailable, to take  
 natural advantage [does the black soil  
 extend under the sand ridges, thus  
 reducing timber on such ridges?] from  
 such breeding to migration on the  
 description of the light soil may be often  
 be prevented by timber.



[The Copeland :- Flyer flew over Mr. W. K.  
Newcomb's property of Guernsey, N.  
Hamp, 40 miles N of Dover in direction of  
Hamden (Nov. 24 or 25). Nothing else  
known this year. Nothing in spring  
summer of 1935. In Aug 1936 & Aug 1938  
flyer moved out of Brook district down  
W. That was last coming of same except  
for small hatchling in Sept or Oct 1938 on  
redish country. In Nov the first  
migration seemed to come from N.

First migration observed in March 1939.  
Prior to that no fly, no sign for 20 years. This  
year a wind from the N. force last  
hatchling in middle of Sept 1939. The fly  
was very early, very small, pale.  
Main hatchling occurred <sup>Sept</sup> in Oct. 1939.  
Fed very fast which indicates warm and  
a fairly high content. The wind, however,  
blow in middle Nov., which finally flew out W.  
Several hatchlings in early Dec. Much faster  
movement than hatchling in Feb. Very heavy  
and in March. Observed at Boston, however.  
Protein. Fe. water, none, no hatchling.





itself is not to be regarded as a centre of outbreak, nor even a usual overwintering site. All the egg sites seen were unsuitable, or present the means for permanent breeding. On several of them a very few small, old flies of form were observed, but no members of any species. In all cases <sup>except site 42</sup> the surface was very loose & friable. ~~with~~ 3 sites X and 41 the surface showed the deep cracks of black soil country. The evidence shows that ~~subsoil~~ <sup>the</sup> ground in 2000 was on the spot, that was a common generation. Possibly in the winter the soil became heaved, on account of frost heave. It seems that it is the winter egg stage which has the more rigid requirements as to soil.]

In considering an invasion from the N we have to bear in mind the timber belt.

11.5. River to Navaho

Dark grey to black - open plain - few

scattered trees, not gums.

11.8. "Bad water" - light brown - some

with a little

6.5. Light brown - open

7.5. Very open - some

9.5. Light brown to 12.0.

12.5. Very open - some

This is a dark brown, dark

with a little. Some water to be seen

with a little

13.5. Light brown - some

Some water to be seen

14.5. Very open - some

17.1. Light brown - some

18.5. Very open - some

19.5. Light brown - some

21.7. Light brown - some

22.5. Open plain - some

23.5. Light brown - some

25. Light brown - some

with a little - some



*Craspedia chrysanthra* (?) *Hedyotis cretica*  
*Trichinium obovatum* (Sandwich) <sup>(L.)</sup> Willd.  
*Daucus glochidiatus* (Lakell) Fisch.

- large cluster. Plant associated with  
 dark ground. See also on top of hill  
 fern, on open ground. Soil sample.
- 26.6 dark grey soil. Photo of various small  
 (10-20 ft high) plants
- 28.5. Light brown. Apparently pitted. Soil sample by  
 Volpa. Bright too. Close.
30. Under partially - mainly Box  
 articulating country.
31. Red grey soil. Pitted. Volpa
- 32.2. Reddish.
- 33.3 open cavity. See lateral drawing
- 34.7. Yellow.
35. Dark grey. open plain. Soil sample
- 36.5. Close dark patches 6 in - 1 ft.
- 37.5. Light soil. Fair number scattered thin  
 shells. Photo of soil sample
- 37.6. V. dark grey. brown soil
- 37.7. Baggish. 3.2 ft. yellow
- 37.8. Dark brown.

Site 44: 40.6 ms. Typical of this horizon  
*Chorizandra tenuifera*  
 Plain - brown soil. Slightly dark soil





Upper Pine Open Savanna - July 1950  
 Site 48. 2 mi. W. of the junction of the two roads from the U.S. State and local trails above  
 Pelly paly. fair air scattered flies  
 64.8 Nana-ri

The top brought to light three interesting  
 soil types: (1) the medium grey from Nance to ca.  
 76 miles, (2) the hard red-grey sandy or  
 gravelly clay <sup>(this might be types 21 & 3)</sup> ca. 25 - 35 + ca. 57 - 61. (3) red-black  
 plain, ca. 37 - 45 + ca. 61 - Nana-ri. The top  
 suggests you go off the country.  
 This must be the red into.

(Hardly any specimens but hem. except for  
 one dead Perlephora on the side of the road  
 on the side examined. Chamber can be very  
dry. Is it possible that hem. can be  
 an exceptional residual to dry  
conditions in adult stage? (If hem. can  
be seen to be seen on the side of the road  
 the most dead form is at least.)

There is no significant biological barrier  
 between Nance & Nana-ri.

Notes. [Scattered flycatcher numbers in  
district, mainly in plain country.  
At least one flycatcher on the road (NNW) to  
"Sons of the Navaho" on "Black" trail  
(prob. old place) flycatcher not  
seen there. More than numbers seen  
in the N of Navaho.

1934: Not always in beg. Oct. 34. No  
information whatever of flycatcher from  
district here may have been seen. Then  
large seen here than there on road.  
Lays in the information there was in  
of flycatcher, mostly from the North.

Pillager reports mainly of  
seen and flycatcher in road, in  
person, except bright on dark side to  
the "Sons of the Navaho" which is in district on road  
Site 45. Ridge of redish sandy loam with  
vertical lines & some lines of white. Top  
short dark patches, with some white  
pinks half of road on road.









quasi-purpurea

29.2 Pink red & grey

30.2 light red & grey

30.4 - light 49 <sup>seriatus, genus no. 2, Austroicetes pusilla</sup>

30.5 light 49

30.6 light 49

30.7 light 49

30.8 light 49

30.9 light 49

31.2 Dark red & grey <sup>packet</sup>

31.3

31.5 Dark red & grey

31.6

31.7 Dark red on medium set ridge

[After] been for road from the valley  
between the rocky hills with growth  
of native grasses and back out to the  
pine. At ca. 35 miles it crosses the hills  
at a low point & drops into Bogal's

31.8 Heavy red & grey

31.9 Heavy red & grey

31.10 Heavy red & grey

31.11 Heavy red & grey

31.12 Heavy red & grey

405 Red Oak patch.

408 Dark red loam.

416-11 - red pine (decid.)

All country to Haysville is timbered with good clear cutting growing effect in some places - mostly 1900.

417 Small light red soil.

418 Small red soil.

48:2 Site 50 Small flat surface of loam of

charcoal loam with very good growth of young

hills. Some like 1900. This was on the

left side of the road. Scattered loam in places only -

abundant. In places loam is more abundant. This

char. soil has mostly surface soil in some

places but does not form big mounds or

7-8 mounds. Soil was 1900. It was the

same as the one in the road.

At the bottom is light loam patch.

Very much altered in the charcoal

light red loam. It was

red dirt in some patches occasionally

by the road.

The road is very narrow patch.



with fairly close box - fairly many  
 particular places with thick  
 vegetation - many of the  
 particular of these -

73.0 Head and ice  
 to the south of the hill  
 74.0 Head and ice - the south  
 75.0 Head and ice - the south  
 76.0 Head and ice - the south  
 77.0 Head and ice - the south  
 78.0 Head and ice - the south  
 79.0 Head and ice - the south

80.0 Head and ice - the south

81.0 Head and ice - the south

82.0 Head and ice - the south

83.0 Head and ice - the south

Then to the south of the head

74.0 Head and ice - the south

75.0 Head and ice - the south

76.0 Head and ice - the south

77.0 Head and ice - the south

14.5 Dense timber - undergrowth  
 light - <sup>open</sup> sandy soil

91 Rocky floor - small clearing.

91.5 Small creek.

97 ~~Small~~ imparked area -

97.5 Yellowish creek

Rapid & cleared country on left - timber  
 some as before on right

Dense dark green patches of high

100.5 Under a tree.

101 light white sandy soil

2.3 Under both trees

4.1 Red brown clay patch.

7.0 Clearing on left

8.4 " "

9.6 Red sandy soil

very clearing & clean cut.

12.0 Clear on both sides -

13.5 Clear baran.

14.5 The sun not so favorable

many of the light soil areas

light grey color of soil rather than  
 reddish.



Camp location in the (the)

Heavy tan bed, mostly large boulders  
pale gray sandstone. to 5.5 sandy clay

3.6 Sandstone, good texture

6.7 Sand

7.5 Thinly bedded in left hand

8.0 Red sandstone

9.0 Sandstone, coarse, 10.7

11.0 to 13.0. Then was change for  
a thick bed.

14.0 to 15.0 light gray sandy loam  
appears like sandstone

16.0 Boulder

17.0 Light reddish sandy soil

18.0 - 19.5 Red sandstone

20.0 - 21.0 Red sandstone

21.3 - 22.3 Red sandstone - thin bed

22.3 Thin sandy bed

23.0 Blue sandy loam

Embocaut  
[Bucktail] - flies thick at Gilgubra  
in mid-summer (July). In 1924 they came  
in from W & SW.

Have collected some more undoubtedly  
numerous in the district in 1925-6,  
especially in some areas

Many small patches right through  
from July 1925 to present have especially  
in Gilgubra (4000 ft or less). There  
seems no doubt that the W section of  
Cornwall is very distinct as far as E. of  
the undoubtedly are in fact from  
the other side.

16.5 the patoli

24.7 light patch

35.7 Site 21. The calc. is a flat, somewhat  
heavy, well ground. It is in with small  
samples. This soil gets very hard after rain,  
though loose when dry. It can be a  
fine soil in some places a few ft. or so.



a few small light green myxophytes. Some prophylla  
rather more yellowish, lighter border edge  
more so.

76.5 high 11 wide

Site 52: *Leomananura stichia*.

A hard, reddish gravelly ridge with  
a small scrub. Short pasture with  
plenty of bare soil. Scattered groups of 500.  
(*poplarolia poppa*). This has been almost  
completely killed by a blight in 1934.  
-6. Bull soil sample <sup>made in 1934</sup> <sup>egg found</sup> <sup>the soil is very dry</sup>

The same soil sample <sup>made in 1934</sup> <sup>egg found</sup> <sup>the soil is very dry</sup>  
larger than the other. They are in the soil & have  
guts in them, sometimes up to 1/2 in. long.

Site 53: 5 in 5. 2 of *Leomananura*. Light  
choc bean, good short pasture. No other  
grass. *Poa (various kinds)*. The soil is  
rather yellowish. Few heather.  
Soil much lighter & sandy. Lower the  
count is 25. *Portulaca*.

Site 54: Light red soil, <sup>sandy</sup> brown ridge with  
open pasture, very short. *Leomananura*  
hatchings in 1934. (1934) 11 only







26.7.77

27.7.77

28.7.77

29.7.77

30.7.77

31.7.77

1.8.77

2.8.77

3.8.77

4.8.77

5.8.77

6.8.77

7.8.77

8.8.77

9.8.77

10.8.77

11.8.77

12.8.77

13.8.77

14.8.77

15.8.77

16.8.77

17.8.77

18.8.77



504 Blue

505 Greenish-grey

506 Blue with some light  
mottled brown

507 Reddish

508 E. Proclat. - horizontally light

Shoreline - columnar, grey, light

columns - probably vertical

509 Light brown

510 Blue

511 rise

512 St

513

*Pyrodictus aciculus*, *Planorbis* ~~sp.~~ *sp.*

*Proclat. aciculus*, *Austroclat. pusilla*, *Proclat. ~~aciculus~~*

*actus* (R)

*Dactylus*

*Proclat.*

marked *Proclat.* including some  
light brown

514

515

516

517

518

Site 57. 69. 5m. low. Higher than soil. 4005  
*Tipu* sp. *Prasichulus*  
*Tipu* sp. *Prasichulus*  
 fairly numerous. *Tipu* sp. *Prasichulus*  
 a new one. The *Prasichulus* from Mexico  
 present in affluents in wet. *Prasichulus* *Prasichulus*  
 adults. *Prasichulus* *Prasichulus*. *Prasichulus* *Prasichulus*.  
 71.2 2nd one in 1st  
 71.2 2nd one in 1st

72.3 1st one in 1st  
 76. 1st one in 1st  
 77.2 1st one in 1st  
 80 1st one in 1st

later and blacker than the first

44.00 Site 58 *Prasichulus*

100.00 1st one in 1st

The *Prasichulus* from 100.00  
 low. *Prasichulus* *Prasichulus*, *Prasichulus* *Prasichulus*  
 100.00 1st one in 1st

5.1 1st one in 1st

6.00 1st one in 1st

9.00 1st one in 1st



2. Redwood

21.7 Chasmodon

14. Redwood

15. Redwood - white bark

2. Redwood

11.7 Redwood - white bark

22. Redwood - white bark

Redwood - white bark

Redwood - white bark - young wood

54.9 30-40. Redwood - white bark

Redwood - white bark - young wood

Redwood - white bark - young wood

Redwood - white bark - young wood

Redwood - white bark - young wood

Redwood - white bark - young wood

56.9 Redwood - white bark - young wood

Redwood - white bark - young wood

Redwood - white bark - young wood

Redwood - white bark - young wood

41.37 Redwood - white bark - young wood

Redwood - white bark - young wood

41.2 Redwood - white bark - young wood

43. Redwood - white bark - young wood

47.5 Redwood - white bark - young wood

50.4 Redwood - white bark - young wood





suppose not to be having any more, you

soil & some passages of some property  
another side on slope of hill but  
somewhat lighter ~~and~~ help by soil in  
loam. Not here but about 1000 ft. for  
two years. Not many happens about  
Soil sample. Rather more have patches

side on another property, again on  
top of bank of creek. Some small  
have patches. <sup>Just</sup> can be seen. Sample.  
Not many happens about. Rather  
good for two years. Sample.

Some's Reserve, E. of River. Have  
again a lot of bank of creek. These  
were have patches. <sup>and</sup> of some fine  
water in stream, along the top of  
the bank. Soil had reddish  
sandy loam in which surface is so  
readily in compact in several places  
back, new face (the side of bank for  
supposed application). Supplies with patches  
like bank. Soil sample & light sample  
patches on two sides. Dig down  
to river bed, some to nearly level



The sandstone is of fine grain so  
 that it has been so long exposed  
 as to be well rounded for long. No  
 with nature surface was found. There  
 was no indication of river or glacial.

[Note - The bed of the Mississippi  
 the country - Queensland, River & Lake  
 River appear to have occurred without  
 any river anywhere in the history  
 period.]



Botanical notes:-

Rolly-pollies. - ordinary, Bassia quinquelupis,  
 F.v.M.; galvanized, Bassia Birchii, F.v.M.  
 Grass from site 44: barley grass, Hordeum  
murinum, L.

Local yellow Helichrysum on which Perunga  
 was found: Helichrysum apiculatum (Labille)  
 D.C.





For "Leica A" see series of  
photos in material  
relating to Bulletin 186  
(Published as Pl. 4, fig. a of  
that Bull.)





24.

Leica 22: Site 14. Submerged  
valley floor. Bottom, 100 ft.  
20 ft. to 200 ft. under the bank

29.

Leica 26: Site 16. Submerged  
valley floor. Bottom, 100 ft.  
20 ft. to 200 ft. under the bank

23.

Leica 21: Site 15. Submerged  
valley floor. Bottom, 100 ft.  
20 ft. to 200 ft. under the bank

28.

Leica 25: Site 17. Submerged  
valley floor. Bottom, 100 ft.  
20 ft. to 200 ft. under the bank

22.

Leica 20: Site 13. Submerged  
valley floor. Bottom, 100 ft.  
20 ft. to 200 ft. under the bank

27.

Leica 24: Site 18. Submerged  
valley floor. Bottom, 100 ft.  
20 ft. to 200 ft. under the bank

25.

Leica 23: Site 19. Submerged  
valley floor. Bottom, 100 ft.  
20 ft. to 200 ft. under the bank

For "Leica A" see series of  
photos in material  
relating to Bulletin 186  
(Published as Pl. 4, fig. 2 of  
that Bull.)







3.

37.

at home, Macarthur, Oct. 1936.

35.

37.

33

32.

31.

30.







5.

Leica 4. Site 4, a few miles E. of  
Warrenville. Numerous overwintered  
adults of termitifera. 21/9/36.

10.

Leica 9. Site 7. (see Leica 788)

4.

Leica 3. Close-up of depression  
at Parkes (see Leica 2)

9.

Leica 8. Site 7. Numerous  
adult termitifera.

6.

Leica 5. Close up of same.

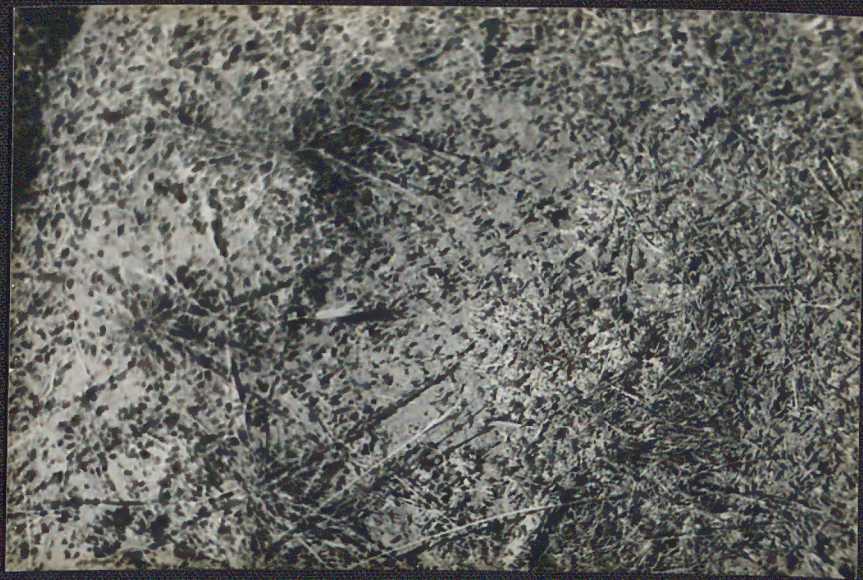
8.

Leica 7. Site 7. Numerous adult  
termitifera 22/9/36. Warumbungle  
foothills.

7.

Leica 6. Site 6, foothills of  
Warumbungle Mts, between Gilgamba  
& Coonaherabran. Scattered adult  
termitifera. Kurrajong trees.  
22/9/36.







21.

Leica 19: N. of Wagait. Low  
tufted grass. Scattered terminifera  
adults.

18.

Leica 14: Band of hoppers near  
Goorianawa, Coonaharabran  
district.

15.

Leica 17. Close up of scalded  
patch shown in Leica 16,  
showing salt-bush.

17.

Leica 13: Hoppers in Coonab.  
district. Sep. 1936.

14.

Leica 16: Typical egg-bed on  
scalded patch near Goorianawa.  
Sep. 1936.

12.

Leica 12: Creek on banks of  
which hoppers were hatching -  
Coonaharabran district, Sep. 1936.

19.

Leica 15. Same as Leica 14

11.

Leica 11. Band of hoppers in  
Coonaharabran district. Sep. 1936